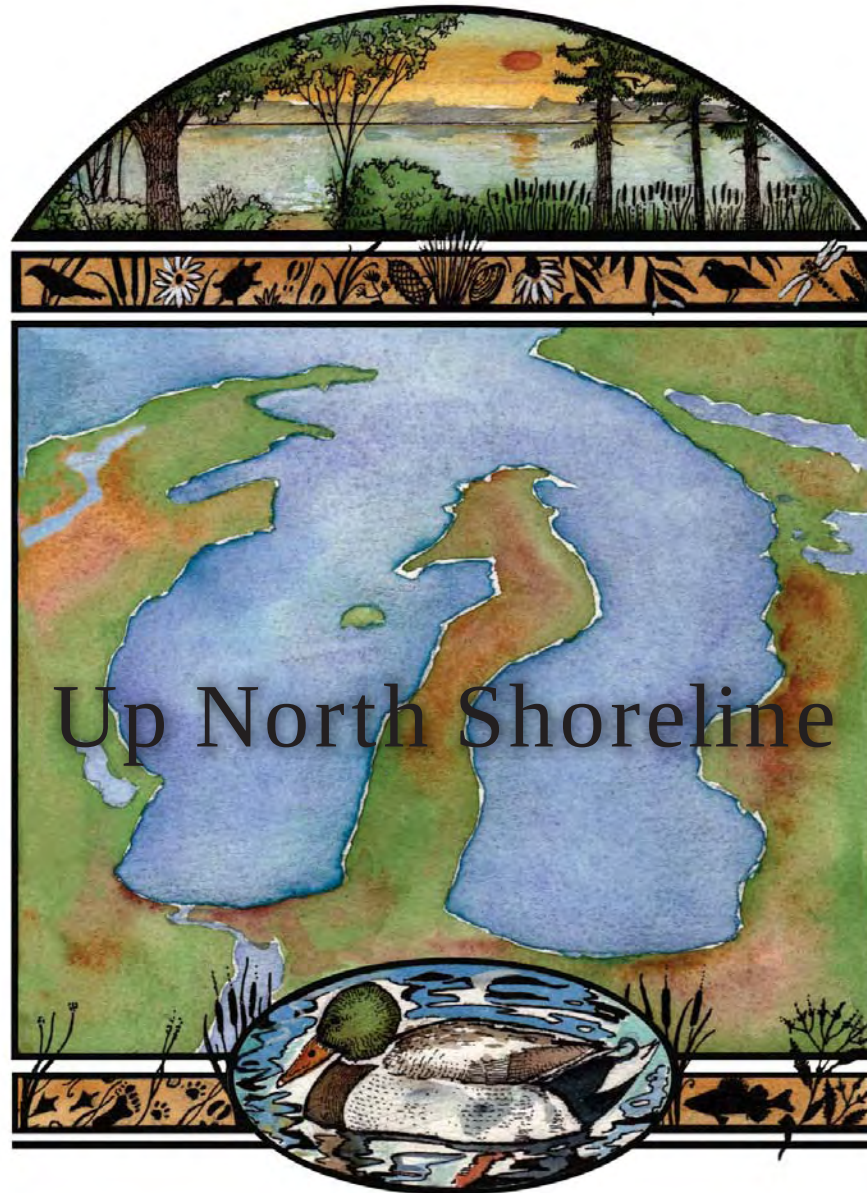




Stewardship Guide for Living on Grand Traverse Bay



Dear Grand Traverse Bay Shoreline Property Owner,

The 132-mile shoreline of Grand Traverse Bay is a vibrant place where the water meets the land. This interface is the most productive area of the bay, rich with a diversity of animals, plants and birds~all dependent on clean water.

As a shoreline property owner on Grand Traverse Bay, you share one of nature's most beautiful resources. We hope this guide will provide useful information to help you continue to be a good steward of our Up North shoreline.

As a shoreline property owner, you play a special role in helping protect Grand Traverse Bay. Thank you for helping protect our Up North water quality~and quality of life.

Sincerely,

Your Friends at the Watershed Center Grand Traverse Bay

www.gtbay.org
231-935-1514



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Plants, Fish and Wildlife Depend on Stewardship

The nearshore shallow waters of Grand Traverse Bay provide habitat for a greater variety of organisms than all the other aquatic zones. The region's glacial history and the moderating influence of the Great Lakes on climate create conditions that support a wealth of biological diversity. These areas are essential in the life cycles of many of Michigan's fish and wildlife.

State wildlife experts recommend leaving 75 percent of the length and 35 to 50 feet of your shoreline depth in natural vegetation to protect fish and wildlife habitat.

Shoreline plants create cover, food and habitat for fish, birds and wildlife. Shallow waters and shoreline plants can be habitat for the same insect during different parts of its life cycle. If the habitat on land is not available for insects, that cycle is broken. Plants that are not in the water now may be underwater as water levels rise, creating feeding grounds, spawning grounds and cover for fish during their life cycles.



Probably the most important feature of the shoreline is the plant life growing in and near the water. Sedges, rushes and grasses create excellent cover and forage areas. Native plants such as Willow species, Blue Vervain, Milkweed, Joe Pye Weed, Little Bluestem, and Smooth Asters are found on the bay's shoreline.

Low water levels can promote plants that grow completely underwater, called submergent, and that extend above the water, called emergent, such as Bulrush. Both types of plants provide critical nursery habitat for fish species such as Yellow Perch and minnows that need to find shelter in extremely shallow waters.

Approximately 30 species of fish live in the bay, and most fish spend at least part of their lives in coastal wetlands. Larger fish, such as Northern Pike and Yellow Perch, attach their eggs to wetland plants; their young continue to live in wetlands. Small fish, such as Mottled Sculpins, Johnny Darters and Sticklebacks, forage in nearshore areas and are sensitive to disturbances. Sustaining fish populations in the bay requires protecting fish spawning beds, nursery areas, wetlands and nearshore forage areas. It also requires protecting habitat for bottom-dwelling organisms and small free-floating plants and animals, such as plankton.

Many birds that live in our watershed also depend on shoreline areas. Bald Eagles, Green Herons, Belted Kingfishers and many song birds live or forage along nearshore areas. Waterfowl such as Loons, Common Goldeneyes and Buffleheads gather on the bay during part of the year to feed and breed.

Frogs, turtles, aquatic insects, and muskrats all rely on nearshore areas. When water levels rise into new vegetation, aquatic insects thrive and are a wonderful lunch for fish, frogs and shorebirds.

We share the shoreline with all these plants and animals. The bay's health depends on the shoreline's health~which depends on what we do.

Fluctuating Water Levels

The Great Lakes watershed is a dynamic ecosystem that is constantly changing. Varying water levels are part of the natural cycles.

Daily

Great Lakes water levels can change a few inches daily depending on the amount of precipitation falling directly on the surface, rate of evaporation, and runoff from the land. Water levels can even change locally in a matter of minutes depending on which way the wind blows!



Sustained high winds from one direction can push the water level up at one end of the Bay and drop at the other end. This is called a wind set-up or storm surge. When the wind abruptly subsides or the barometric pressure changes quickly, the water level will vary until it stabilizes. This is called a seiche, pronounced “saysh.” These water level changes can seem like tides and last for days after the winds or pressure event has ended.

Seasonally

Great Lakes water levels also change with the seasons. These differences range from 12 to 18 inches, with lower levels in winter and higher levels in summer. In fall and early winter, the air above the bay is cold and dry while the water is relatively warm, resulting in the greatest

evaporation and water level decline of the year. When snow melts in spring, runoff to streams and the bay increases; evaporation is low since the water is relatively cold and the air is warm and moist. Lake Michigan is generally at its highest in July.

Multi-Year Fluctuations

Over the centuries, water levels in the Great Lakes have risen and fallen due to basin-wide, continental and global climatic variations that affect evaporation and precipitation. The lakes have enjoyed a relatively small range in water levels, approximately 6.5 feet from the recorded monthly maximum to the monthly minimum.

Low Water Changes

During low water levels, more bottomlands are exposed, wetland plants increase, and seeds that have been buried in sediments sprout. These become new coastal wetlands. Plants hold the soil and prevent shoreline erosion. More birds, fish, wildlife and insects move into these new habitats.

High Water Changes

During high water levels, aquatic plants increase and plants along the shore become submerged. High water levels can cause shoreline erosion where there is no vegetation and can damage structures that are close to the water's edge.

Average Lake Michigan-Huron Water Levels (feet) from 1918-2018

	Long-term Average	Highest Monthly Mean	Month & Year	Lowest Monthly Mean	Month & Year
Lake Michigan-Huron	578.84	581.99	July 1986	576.02	January 2013

All data are referenced to International Great Lakes Datum (IGLD) 1985. Data published by United States Army Corps of Engineers in February 2019.

The Ever-Changing Shoreline

Waves

Waves cause most of the erosion. When higher waves hit the shore, more soil and sand are washed away.

Wind

When the wind blows, it not only makes waves, but also moves loose soil and sand, causing beach erosion.

Ice

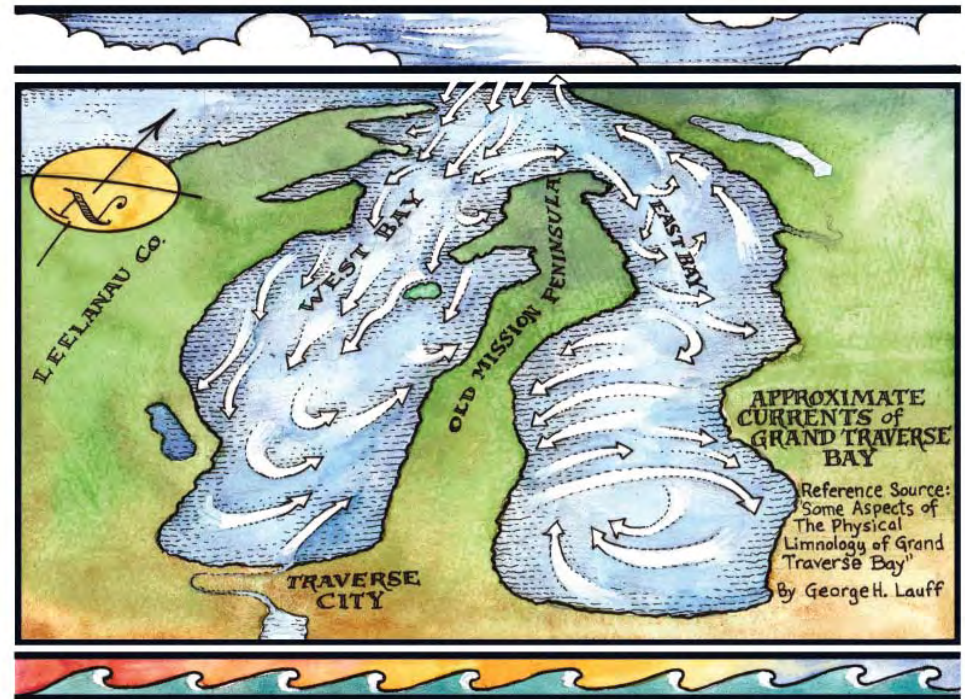
During winter, ice forms on the Great Lakes. As ice breaks up and melts during the spring, winds push it up along the shore. Ice scours the beach and forms a ridge line, which can help prevent runoff and provide new material for the beach. During some years, moving ice may damage structures or uproot trees. Ice can also redirect wave energies offshore, protecting beaches, but it can increase erosion of the lakebed.

Currents

Each Great Lake has a distinct pattern of currents. The circular motion of currents moves sand and other sediments, nutrients and contaminants throughout the Great Lakes basin. Currents contribute to the changing shape of the shoreline. Because the bay is very long, narrow and oriented to the north, the predominantly north and northwest winds create a current that flows from south to north. Water exits the basin from south to north, while water flows into the bay from north to south.

Erosion

Natural forces causing erosion are embodied in waves, currents and wind. Most waves arrive at an angle to the shore. As successive wave fronts advance and retreat, they set up a longshore current. As waves break, run up the shore and return, they carry sedimentary material onshore and offshore. This sedimentary material is called littoral drift. The energy in the moving water determines the size and amount of material that moves and how far. The energy in a wave depends on the speed of the wind, its duration and the unobstructed water distance, or fetch, it blows over. Gentle waves move fine sand, whereas storm-generated waves move rocks and boulders. Materials picked up from shoreline areas are deposited wherever the water is slowed down and may be picked up again when water velocity increases.



If erosion is not balanced by accretion, or sediment depositing, the shore will be washed away. Erosion and accretion are two faces of the same process. They can occur at extremely slow rates or dramatically in a short time.

Natural shores are nourished by material that has been eroded from other areas, becoming part of the littoral drift system. Fluctuating water levels can expose new surfaces to erosion. As seasons change, wind strength and direction also change, altering the path of waves and currents. Gently sloping shores, whether beaches or wetlands, are natural defenses against erosion. The slopes of the land along the edge of the water form a first line of defense called a berm, which decreases the energy of breaking waves. During high water periods, a berm can prevent water from moving inland.

Types of Shoreline

Grand Traverse Bay includes 132 miles of shoreline, touching three counties and 263 square miles of navigable waters. Shorelines along the bay are not all the same; each type has a special community of plants and animals and undergoes a unique process of natural change. Knowing as much as you can about the natural processes that affect the type of shoreline you own will help you protect your shoreline from erosion.

Beaches

Sandy Beaches~Sand particles do not readily hold together, so sandy beaches erode easily. High waves from storms wash sand away. Sand is deposited offshore on sandbars. When waves decrease, sand is carried back to shore, rebuilding the beach.

Cobblestone Beaches~Depending on the size of the stones and the thickness of the stone layer, cobblestone beaches do not erode easily.

Bluffs

Clay Bluffs~Clay bluffs erode easily in two ways: 1) Rainwater absorbs into the ground until it reaches a clay layer, which sometimes seeps out of the bluff and erodes it; 2) Groundwater may cause the bluff to slump and eventually collapse. An example of this is between Lee Point and Stoney Point in Leelanau County.

Rock Bluffs~Rock bluffs are fairly hard and resist erosion. However, when waves break directly on the face of the bluff, ice shoves against the shore, or water within the rocks freezes and expands, rock bluffs may break and erode. The best example is where the Antrim Shale is exposed north of Eastport.

Forested Shoreline

In many areas of the Great Lakes, forests reach all the way to the water. Wave action can undercut this type of shore, carrying away sand and clay, and causing trees to fall into the lake. Examples include Power Island and Lighthouse Point on Old Mission Peninsula.

Coastal Wetlands

Coastal wetlands provide habitat, protect against erosion, and improve water quality by controlling sediments and absorbing nutrients.



The most common types of wetlands are marshes, where vegetation can tolerate large short- and long-term fluctuations in lake levels. These wetlands are shaped by dynamic lake processes, including waves, currents and water levels. They occur in areas where the erosive forces of ice and wave action are low, allowing the growth of wetland plants. Wetland plants have adapted to varying water depths, allowing them to be more extensive and productive than if water levels were stable.

Grand Traverse Bay has Great Lakes Marsh and Emergent wetlands. Ptoatego and Baker Creek wetlands are examples.

Researchers have found that the main threats to coastal wetlands are draining, removing vegetation, and turning them into beaches. Wetlands are then unable to recover during higher water levels.

Shoreline Plants Protect Your Water Quality

As a property owner on the Great Lakes shore, **the most important thing you can do to protect water quality is maintain a buffer of plants between your home and the water or any wetland areas near the water.** This is called a riparian, vegetated or greenbelt buffer.

Buffers prevent erosion and filter pollutants before they reach the bay. Buffers provide food and shelter for wildlife and help keep water clean.

- ***Check with your local zoning administrator to see if there is a buffer ordinance. If so, use it as your guide; but remember, the deeper the buffer, the better for the bay!***
- ***Keep vegetation along at least 75 percent of your shoreline length.***
- ***The buffer should extend 35 to 50 feet deep from the water's edge. But any buffer is better than none.***
- ***Starting a buffer can be as easy as not mowing the area.***
- ***Ideally, plants should have a variety of root depths.***
- ***If you would like to create views of the water, prune the branches of trees and shrubs, but do not cut them down. Remember, the roots of trees and shrubs protect water quality by filtering pollutants and guard your shoreline from erosion.***
- ***Choose native plant species. They are used to shoreline conditions and will protect your shoreline from invasive plants. Many local nurseries sell native plants, shrubs and trees.***

Buffers are excellent at filtering sediments and excess nutrients from runoff before it reaches the bay. Sediments are dirt, and nutrients include phosphorus from fertilizer. Our EPA-approved Grand Traverse Bay Watershed Protection Plan finds that nutrients and sediments are the top two threats to the watershed.

Shoreline habitat is vital, so many activities that impact vegetation require a permit from EGLE and the Army Corps of Engineers.



Shoreline Plants Defend Against Invasives

Leaving native vegetation in place makes the shoreline more resistant to invasive plants. If there is no place for highly invasive plants such as Phragmites to take hold, it is much less likely that they can grow there.

Shoreline Plants Prevent Erosion

Vegetation is the most critical weapon against sand erosion. First, vegetation holds sand underneath it from blowing or being washed away. Second, it catches blowing sand, creating sand swales or dunes. When water levels rise, the swales and vegetation protect the shoreline from erosion and flooding.

The most important thing you can do to protect water quality is maintain a buffer of native plants between your home and the water.

Why Hardscaping is Hard on Water Quality

Structures such as seawalls can have significant adverse effects on water quality, wildlife and other shoreline properties. The type of shore protection used should be carefully considered.

Constructing any type of shore stabilization structure such as a seawall, bulkhead, or revetment at or below the ordinary high water mark requires permits from the state, county and perhaps local government. See page 22 about the ordinary high water mark.

The extensive root systems of trees, shrubs and plants are more effective in protecting the shoreline than rocks or seawalls are. Hardened surfaces increase energy in waves and cause more erosion on the shoreline immediately adjacent to the hardened area.

Shoreline hardening that includes vertical walls destroys the gradual transition from shallow water to upland. Waves pounding off vertical walls cause bottom scouring, stir bottom sediments, increase water

turbidity, and impact spawning areas and aquatic vegetation. Vertical faces block access to and from the water for turtles, frogs, and other fauna that need uplands to feed, rest and nest. Seawalls damage or destroy these important habitat areas and weaken the ecosystem.

This is why natural resource managers recommend using natural shoreline treatments. New shoreline hardening should be avoided where alternate approaches such as plantings and natural stone can be used to protect property from erosion. Plantings provide a natural transition between open water and upland, providing habitat.

A natural, vegetated shoreline is less expensive to construct, absorbs and disperses wave energy and tends to be self-healing. Many problems can be avoided by properly placing structures to minimize vegetation loss and changes to topography. Leaving a natural, unmowed transitional area or adding deep-rooted native plants, shrubs and trees can minimize the effects of waves, ice and fluctuating water levels.



Trees, shrubs and plants are more effective in protecting the shoreline thanks to their root systems than rocks or seawalls are. Hardened surfaces increase energy in waves and cause more erosion on the shoreline immediately adjacent to the hardened area.

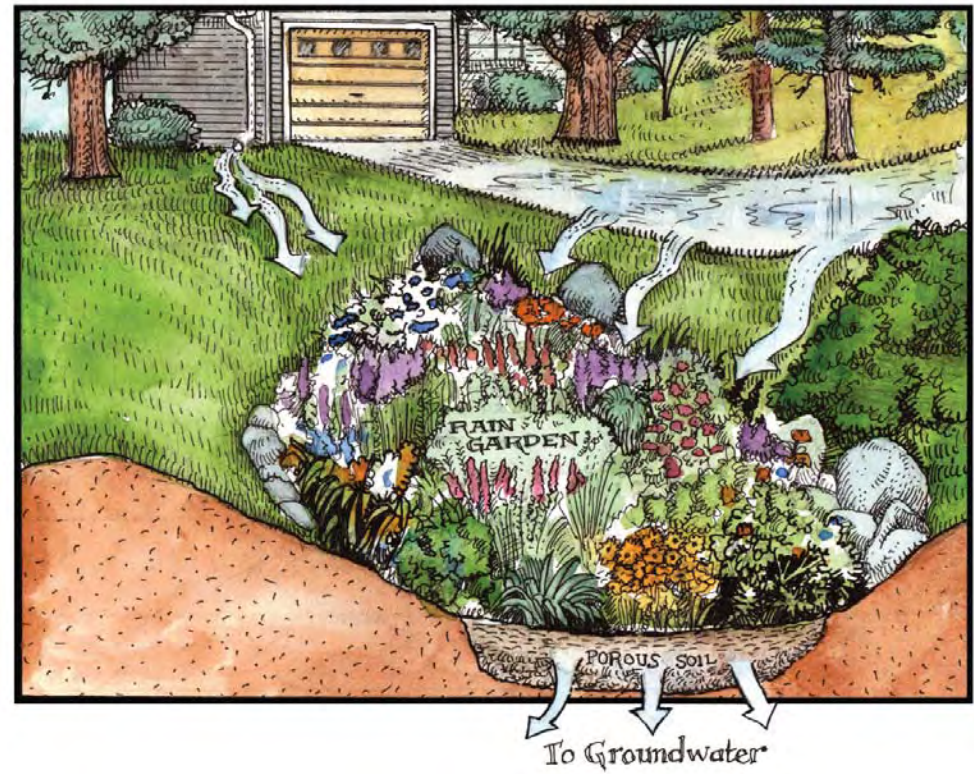
Routing Runoff

Nutrients and sediments are the two highest threats to water quality in the Grand Traverse Bay watershed. The main source of these pollutants is runoff. Limiting the amount of hard surfaces and managing runoff before it reaches the shoreline helps protect water quality.

One way to help control large amounts of algae washing up on shore is to eliminate its food source~nutrients. Shoreline vegetation filters and absorbs nutrients from runoff before it reaches the water. Algae beds have tripled in the bay since 1990 due to excess nutrients such as phosphorus from lawn fertilizers. Our studies have found higher levels of phosphorus in nearshore areas.

Directing runoff to rain gardens or areas with trees and shrubs, and maintaining a buffer that's 75 percent of your shoreline length and 35 to 50 feet deep next to the water can dramatically reduce the amount of nutrients leaving your property.

- ***Install areas such as rain gardens to store and treat runoff.***
- ***Contour your property to direct runoff into low areas where it can collect temporarily and soak into the ground or where vegetation has an opportunity to absorb the water.***
- ***Do not channel runoff directly into the bay!***
- ***Steer runoff away from your septic system and drinking water well. Excessive runoff can interfere with drainfield operation or seep down the well shaft and contaminate your drinking water.***
- ***Install temporary sediment control barriers before moving any soil.***
- ***Immediately after you have disturbed the soil, seed the area, add sod or install plants and shrubs.***
- ***Remember to mulch, so loose particles will not be washed away during the first rain.***
- ***Catch rain water in rain barrels to use in your garden.***
- ***Consider permeable surfaces for driveways and patios.***



What we do on the land can contribute to declining water quality. Building homes, garages and driveways converts our open lands from pervious surfaces that can absorb rainfall to impervious surfaces that cannot absorb it. Instead of rain filtering into the ground, it runs faster off these hard surfaces into the nearest body of water. Runoff picks up sediment, fertilizers, petroleum products and pesticides along the way, ultimately ending up in the bay.

The more trees you cut, soil you move, and chemicals you put on your yard, the more you potentially degrade water quality along your shoreline. Also, keep in mind that when the soil is frozen, not nearly as much water is absorbed into the soil.

Visit Demonstration Projects

There may be demonstration projects in your community that show how to create a buffer or a rain garden. You can visit the Watershed Center to see a rain garden. You can visit Hannah Park in Traverse City, Milton Township Park or Valleau Landing Park in Alden to see a buffer.

Landscaping for Healthy Water

Think Twice About a Traditional Lawn

Traditional manicured lawns can cause problems along the shore. Grass cannot absorb a lot of nutrients from runoff because its roots are so short. Native plants, however, have deep roots to absorb more pollutants, prevent erosion and require little or no fertilizer. Sites with buffers can save as much as 48 percent in maintenance costs as compared to traditional landscaping~not to mention time.

Fertilizers, herbicides, and pesticides can run off your yard and into the bay, polluting the water where you want to swim. Nutrients from fertilizers can cause excessive algae growth, becoming a nuisance to swimmers and boaters. Herbicides and pesticides contain chemicals that are harmful to humans, animals and aquatic plants.

Turf grass and sod do not grow well in wet and sandy soils along the Great Lakes. A mixture of native flowers, sedges, shrubs and trees grows much better, requiring little or no maintenance.



Excess Fertilizer Causes Algae Blooms

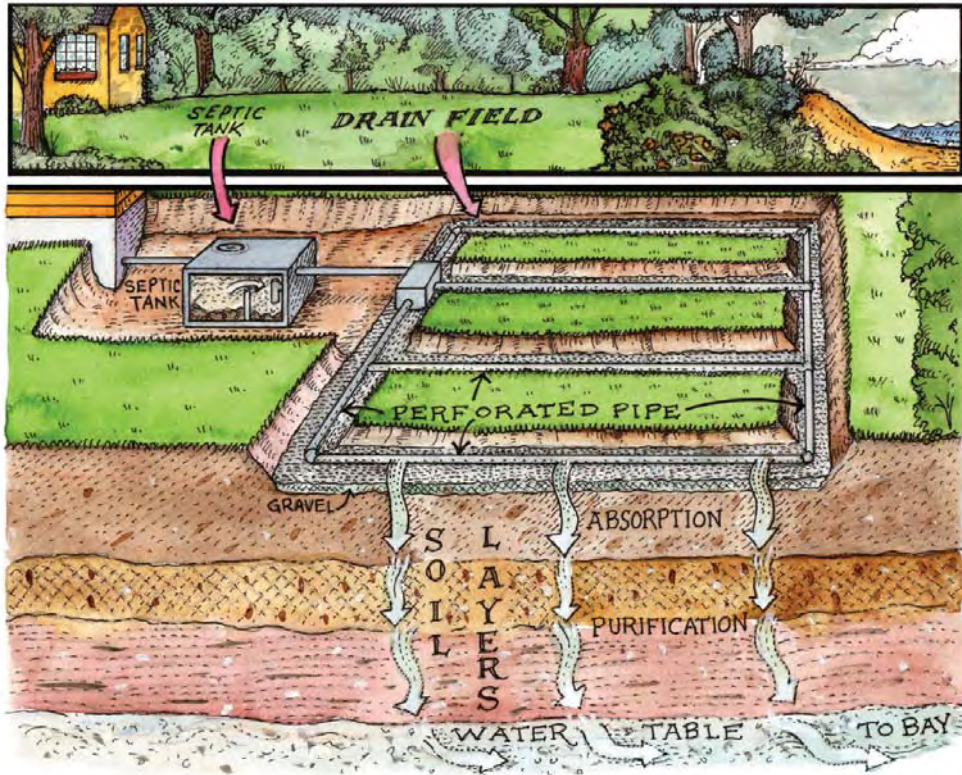
- *Have your soil tested to see if you even need fertilizer. Contact your local Michigan State University Extension or Conservation District about testing your soil.*
- *Use the smallest amount of no-phosphorus fertilizer possible.*
- *Don't fertilize at all within 100 feet of the water, near paved areas or before it rains.*
- *Apply fertilizer in spring when grass can absorb the nutrients~not in fall when it is going dormant.*

Keeping Your Shoreline Healthy

- *Clean up outdoor pet waste. It can increase E. coli in the water.*
- *Do not pile leaves within 50 feet of the shoreline. Decaying organic matter adds excess nutrients to the water and depletes it of oxygen. Leaves kill beneficial vegetation.*
- *Make sure any runoff on your property passes through vegetation before reaching the bay.*
- *Avoid beach grooming, or uprooting plants. Vegetation holds the sand in place, protects your property from erosion, absorbs nutrients and supports wildlife. Also, disturbed soils are an invitation to invasive plants! The more vegetation, the better for the bay!*
- *If you think you have invasive plants on your shoreline, contact your local Conservation District or The Watershed Center. Effectively treating invasive plants can take different forms and may require a permit.*
- *If you have a wet shoreline where you would like to walk, consider building a floating boardwalk. This will allow you to walk across swales that have standing water or muddy vegetated areas. To reduce the impact your boardwalk may have on vegetation, consider sharing one with neighbors.*

Your Septic System and Water Quality

Many homes in our watershed depend on septic systems to treat wastewater. These systems are within 10 feet of the surface. The wastewater is distributed through perforated pipes. Soils below the pipe absorb nutrients as the water filters downward until it reaches the water table. Your wastewater flows through your septic tank to the septic field, then filters into groundwater that flows to the bay. There is a connection between your septic system and the bay.



County health departments often have regulations requiring that septic systems be set back a minimum distance from the shoreline. Local governments may also have regulations regarding septic system or building setbacks. **If you are installing a new septic system or are considering new construction or remodeling, check with your county health department and local government about any regulations that may apply.**

Properly maintaining your system will keep nutrients from reaching the bay. Excess nutrients cause algae blooms.

- ***Pump out your system every three to five years. If you can't remember when you last had it pumped, it is time!***
- ***Do not flush feminine hygiene products, diapers, cigarette butts or anything else down the toilet. The only thing that should be flushed is bodily wastes and toilet paper.***
- ***Do not flush any unused medications or any household hazardous wastes down the drain or toilet. Check with your county about drop-off sites.***
- ***Don't install a garbage disposal or use it if you have one. It will fill up the septic tank with solids much more quickly, requiring more frequent pumping to ensure that solids don't get into the drainfield and cause a system failure.***



Who Owns What?

You own the land to the water's edge. However, local, state and federal governments have an interest in how land near water is managed because they are responsible for protecting water quality, fish, wildlife, navigation and floodplains.

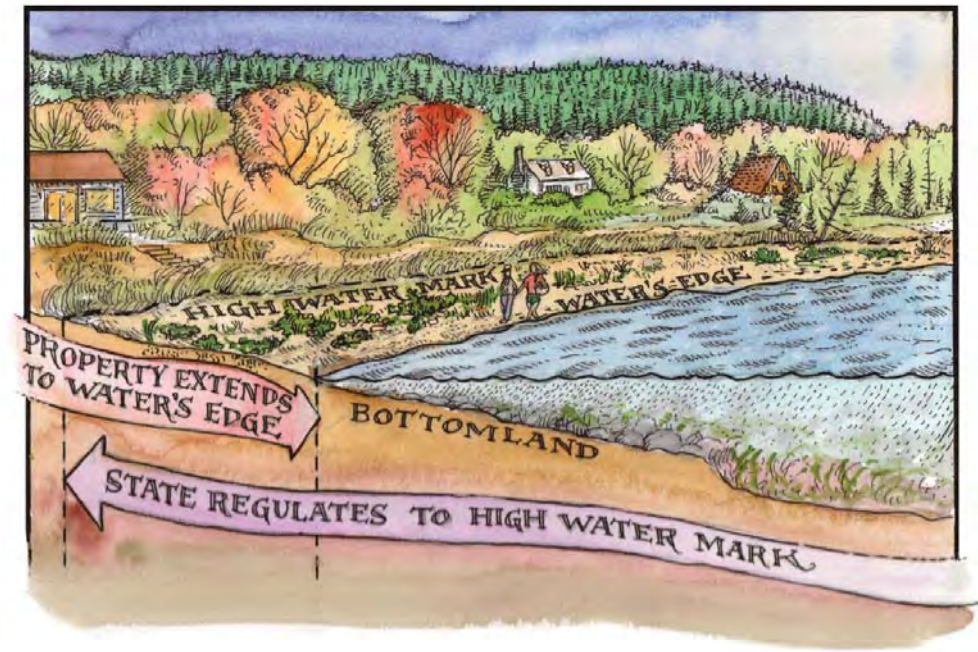
There are 20 county, township and municipal governments with shoreline on Grand Traverse Bay. While that may sound daunting, it just means that you should check with your local, county and state government offices when you are planning any activities on the shoreline.

Michigan owns the Great Lakes bottomlands. When Michigan became a state, the federal government gave it ownership of its adjacent Great Lakes bottomlands to be held in trust for the people of Michigan. Due to water level fluctuations in the Great Lakes, these bottomlands may be underwater or exposed.

However, since the water level changes and the state has a legal interest in the shoreline area that could be underwater in the future, courts have found that **the state has regulatory authority to the natural ordinary high water mark.**

In some circumstances, that mark is set by statute; in others, it is established on a case-by-case basis depending on the characteristics of the shoreline, such as topography, erosion and natural alteration of vegetation. When the ordinary high water mark is determined, it does not change as water levels change.

Everyone has the right to swim, boat, fish or anchor overnight on Great Lakes surface water. **The Michigan Supreme Court has upheld a person's right to walk the shoreline below the natural ordinary high water mark. However, the public does not have the right to stop and picnic, build a fire or camp there. The public cannot cross your upland property to get to the shoreline below the ordinary high water mark without your permission.**



Because of the state interest, Great Lakes shorelines are regulated differently from inland lakes. All shoreline property owners have certain property rights, called riparian rights. Generally, riparian rights provide access to the water; docking a boat, called wharfage; and using the water for domestic purposes. On the Great Lakes, riparian rights do not include ownership of the lakes' bottomlands; on an inland lake, they do. Government agencies have the right to regulate certain activities along the Great Lakes shoreline that they do not regulate on an inland lake. For example, the US Army Corps of Engineers is responsible for ensuring safe navigation on the Great Lakes but not on inland lakes.

The Michigan Supreme Court has upheld a person's right to walk the shoreline below the natural ordinary high water mark. However, the public does not have the right to stop and picnic, build a fire, camp or cross your property to get there.

When Do I Need a Permit?

Many activities along the shoreline may require a permit. That's because it is such a vital and productive part of the bay. Contact your local zoning administrator, the local field office of the Michigan Department of Environment, Great Lakes, and Energy (EGLE), and the Army Corps of Engineers before removing any vegetation. And please remember that just because your neighbors may have removed vegetation doesn't mean that it was legal or good for the bay!

The following activities require compliance with certain laws and regulations. Check with the EGLE and Army Corps of Engineers if you are considering any of these activities:

- Leveling or adding sand
- Mowing
- Mechanically grooming
- Constructing a path
- Removing vegetation
- Spraying herbicides below the ordinary high water mark, including treating invasive plants

Please note that removing rocks from bottomlands is prohibited.

Generally, activities within 500 feet of the shoreline, or are likely to disturb more than one acre of land, and other sites identified in ordinance language, require a soil erosion permit from your county.

Certain activities may also require approval from your local government. Contact your local zoning administrator and your county government offices about regulations that apply and any permit requirements.

Just because an activity may require a permit doesn't mean that you won't be able to pursue your project. It just means that you need to ensure that your project does not cause significant harm to the bay or create a navigation problem. Often, what you want to do will fall into a minor project category, requiring a small fee, a short application and a short permitting process.

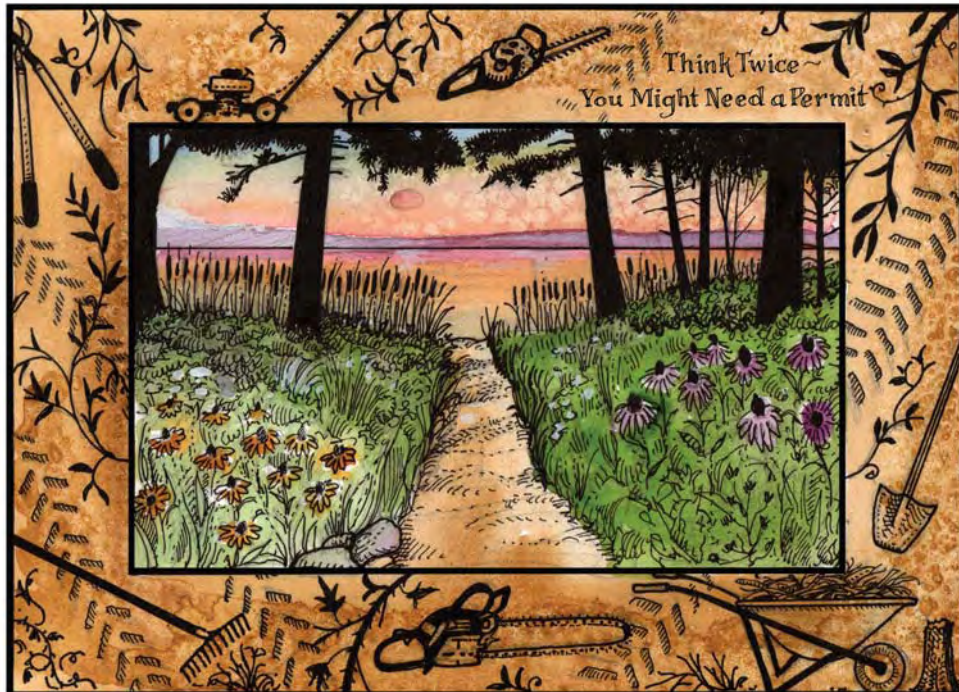
- Call your local unit of government. Explain your proposed project and ask them to identify which office will be the most help to you.***
- Check with your county about whether you need a building permit and/or a soil erosion and sedimentation control permit. If you are installing a septic system, you will need to contact the county health department.***
- If you are pursuing any activity below the ordinary high water mark, check with state and federal agencies.***

Protection Against Flooding

By law, the state must ensure that any development within a water body's floodplain is reasonably safe from flooding and does not increase flood damage potential. The floodplain is the land area that would be inundated by water from a 100-year flood. This is a flood that has a 1 percent chance of occurring any given year, not a flood that occurs once every 100 years.

Authority regarding development standards for floodplains along the Great Lakes, including Grand Traverse Bay, have been delegated to local governments. Contact your local zoning administrator or your local EGLE field office about regulations that apply to the floodplain.

There are situations when working your way through the permitting process can take time. Start early and plan ahead. Remember that you, not your hired contractor, are responsible for obtaining and complying with appropriate permits.



Hoists, Moorings, Docks and Decks

Docks, hoists and decks can potentially impact vegetation and interfere with littoral drift. These structures can be damaged by storms, waves, winds, ice and changing water levels, which can result in debris in the water. Docks and moorings can impact navigation. Structures near or in water likely require permits.

Some structures are considered minor, so obtaining a permit is relatively easy, quick and inexpensive. Others require an individual permit, a larger fee, and a longer application process. EGLE and the Army Corps of Engineers have a joint permit application, so you only need to fill out one form for both agencies. Any permanent structures require a permit.

Hoists

Seasonal hoists require a permit from the Army Corps of Engineers but generally don't require one from EGLE. Check with your local zoning administrator about what local rules may apply, such as limitations on the number of hoists given the length of the shoreline and the number of properties sharing the shoreline.

Moorings

You should have an Army Corps of Engineers and EGLE permit to moor a boat or a floating dock offshore your property.

Bottomlands off public frontage at road ends or in front of parks are not open for the public to moor boats without permits from EGLE and the Army Corps of Engineers. Local governments can operate a mooring field as long as there is a permit and an agreement is in place with the State of Michigan. Elmwood Township has such a mooring field.

However, anyone may anchor a boat temporarily offshore in the Great Lakes, generally overnight or during the day. The submerged bottom-lands of the bay belong to the public, not the shoreline property owner.

Docks

Seasonal temporary docks for private, non-commercial use require an Army Corps of Engineers permit but generally don't require a permit from EGLE. Permanent docks, piers or wharves require a joint permit from EGLE and the Army Corps of Engineers. Local ordinances may also apply, so check with your local zoning administrator.



Small floating docks, such as swimming docks, require an Army Corps of Engineers and EGLE permit if you plan to leave the anchor on the bottomlands during winter.

Storing Seasonal Hoists and Docks

Local governments have adopted rules about storage because anything left in the floodplain of the Great Lakes could be washed away during a large storm. Check with your local zoning administrator about whether seasonal hoists and docks can be stored, and where. Wait to buy hoists and docks until you have checked with the local zoning administrator, obtained the required permits, and have a storage location.

Decks

If you would like to construct a deck, or any structure, within 500 feet of Grand Traverse Bay, you need a Soil Erosion Control Permit from your county government. You also need a local land use and/or building permit from your local government. If your plans require part of the structure to be below the ordinary high water mark, you need a permit from EGLE. Check with your local zoning administrator and the county soil erosion and sedimentation control office when planning your project.

Resources

Agencies

Michigan Department of Environment, Great Lakes, and Energy
www.michigan.gov/egle, 800-662-9278
Grand Traverse, Kalkaska and Leelanau County residents call Cadillac office, 231-775-3960
Antrim County residents call Gaylord office, 989-731-4920
Floodplains, Permits, Shoreline Management, Soil Erosion, Wetlands

US Army Corps of Engineers, Detroit District
www.lre.usace.army.mil/, 888-694-8313
Permits

Organizations

The Watershed Center Grand Traverse Bay
www.gtbay.org, 231-935-1514
General questions

Antrim Conservation District
www.antrimcd.org, 231-533-8363
Soil testing, invasive species

Grand Traverse Conservation District
www.gtcd.org, 231-941-0960
Soil testing, invasive species

Leelanau Conservation District
www.leelanaucd.org, 231-256-9783
Soil testing, invasive species

Michigan State University Extension
www.msue.msu.edu, 888-678-3464
Soil testing, finding your local extension

RecycleSmart
www.recyclesmart.info
231-941-5555
Recycling household hazardous wastes, unused medications

Tip of the Mitt Watershed Council
www.watershedcouncil.org, 231-347-1181
General questions, invasive species

Federal and State Laws

Federal Water Pollution Control Act (The Clean Water Act), 33 U.S.C. Sections 1251-1387(1972)

Rivers and Harbors Act Section 10, 33 USC Section 403 (1899)

Michigan Constitution Article 4, Section 52, Wetland Protection Act, Part 303 of the Natural Resources and Environmental Protection Act (NREPA), Act 451 of 1994, MCL Sections 324.303001 to 324.30329

Great Lakes Submerged Lands Act, Part 352 of NREPA, Act 451 of 1994, MCL Sections 324.32501-324.32516

Soil Erosion and Sedimentation Control Act, Part 91 of NREPA, Act 451 of 1994, MCL Sections 324.9101 to 324.9123a

Flood Control, Part 31 (Water Resources Protection) of NREPA, Act 451 of 1994, MCL Sections 324.3104, 324.3108, 324.3115a

Shoreland Protection and Management Act, Part 323 of NREPA, Act 451 of 1994, MCL Sections 324.32301 – 324.32315

Aquatic Nuisance Control Act, Part 33 of NREPA, Act 451 of 1994, MCL Sections 324.3301 to 324.3313

References

Living With the Lakes: Understanding and Adapting to Great Lakes Water Level Changes, Great Lakes Commission, 2000

Between Land and Lake: Michigan's Great Lakes Coastal Wetlands, Dennis Albert, Michigan Natural Features Inventory, 2003

From Backyard to Shoreline: Protecting Michigan's Coastal Wetlands, Michigan Sea Grant

Protecting Wetlands along the Great Lakes Shoreline, MSU Extension

Where Land Meets Water: Understanding Wetlands of the Great Lakes, Canadian Wildlife Service, Environment Canada, Toronto, ON, 2002

Living with the Lakes: Understanding the Impacts of Vegetation Removal And Beach Maintenance